

IN THE CLAIMS:

The following is a listing of all the claims as they currently stand.

1-17. (Canceled)

18. (Previously added) A method of delivering a secreted protein into the bloodstream of a mammalian subject, the method comprising:
introducing into the gastrointestinal tract of a mammalian subject by oral administration a construct which is formulated as a pill, a capsule, or a tablet, said construct comprising:

a) a nucleic acid molecule comprising a coding sequence encoding a protein; and
b) a promoter sequence operably linked to the coding sequence, wherein said construct is not packaged in a viral particle, said introducing resulting in introduction of the construct into an intestinal epithelial cell, production of the encoded protein in the intestinal epithelial cell and secretion of the protein from the cell and into the bloodstream of the subject.

19. (Previously added) The method of claim 18, wherein the protein is a fusion protein.

20-22. (Canceled)

23. (Previously added) The method of claim 18, wherein the nucleic acid molecule is formulated with an agent that protects against degradation.

24. (Previously added) The method of claim 18, wherein the nucleic acid molecule is formulated as a time-release formulation.

25. (Previously added) The method of claim 18, wherein the nucleic acid molecule is associated with an agent that facilitates delivery to the target cell.

26. (Withdrawn) The method of claim 18, wherein the protein is an immunotherapeutic protein.

27. (Previously added) The method of claim 18, wherein the protein increases an immune response.

28. (Withdrawn) The method of claim 18, wherein the protein induces immune tolerance.

29. (Previously added) The method of claim 18, wherein the protein is an antigen.

30. (Previously added) The method of claim 29, wherein the antigen is a viral antigen.

31. (Previously added) The method of claim 29, wherein the antigen is a bacterial antigen.

32. (Previously added) The method of claim 29, wherein the antigen is a fungal antigen.

33. (Previously added) The method of claim 29, wherein the antigen is a parasitic antigen.

34. (Withdrawn) The method of claim 18, wherein the protein is an antibody.
35. (Withdrawn) The method of claim 34, wherein the antibody is a monoclonal antibody.
36. (Withdrawn) The method of claim 18, wherein the protein is a clotting factor.
37. (Withdrawn) The method of claim 18, wherein the protein is a protease.
38. (Withdrawn) The method of claim 18, wherein the protein is a pituitary hormone.
39. (Withdrawn) The method of claim 18, wherein the protein is a protease inhibitor.
40. (Withdrawn) The method of claim 18, wherein the protein is a growth factor.
41. (Withdrawn) The method of claim 18, wherein the protein is a somatomedian.
42. (Withdrawn) The method of claim 18, wherein the protein is an immunoglobulin.
43. (Withdrawn) The method of claim 18, wherein the protein is a gonadotrophin.

44. (Withdrawn) The method of claim 18, wherein the protein is a chemotactin.
45. (Withdrawn) The method of claim 18, wherein the protein is a chemokine.
46. (Previously added) The method of claim 18, wherein the protein is a plasma protein.
47. (Withdrawn) The method of claim 18, wherein the protein is a plasma protease inhibitor.
48. (Withdrawn) The method of claim 18, wherein the protein is an interleukin.
49. (Withdrawn) The method of claim 18, wherein the protein is an interferon.
50. (Withdrawn) The method of claim 18, wherein the protein is a cytokine
51. (Withdrawn) A method of delivering a secreted protein into the bloodstream of a mammalian subject, the method comprising:
introducing into the gastrointestinal tract of a mammalian subject by suppository administration a construct comprising:
 - a) a nucleic acid molecule comprising a coding sequence encoding a protein; and
a promoter sequence operably linked to the coding sequence, wherein said construct is not packaged in a viral particle, said introducing resulting in introduction of the

construct into an intestinal epithelial cell, production of the encoded protein in the intestinal epithelial cell and secretion of the protein from the cell and into the bloodstream of the subject.

52. (Previously added) A method of inducing an immune response to a secreted protein antigen in the bloodstream of a mammalian subject, the method comprising:

introducing into the gastrointestinal tract of a mammalian subject by oral administration a construct comprising:

(a) a nucleic acid comprising a coding sequence encoding a secreted protein antigen; and

(b) a promoter operably linked to the coding sequence, wherein said construct is not packaged in a viral particle, said introducing resulting in introduction of the construct into an intestinal epithelial cell and secretion of the protein antigen from the cell and into the bloodstream of the subject, and wherein an immune response to the protein antigen is induced in the subject.

53. (Previously added) The method of claim 52, wherein the antigen is a viral antigen.

54. (Previously added) The method of claim 52, wherein the antigen is a bacterial antigen.

55. (Previously added) The method of claim 52, wherein the antigen is a fungal antigen.

56. (Previously added) The method of claim 52, wherein the antigen is a parasitic antigen.

57. (Previously added) The method of claim 52, wherein the nucleic acid molecule is formulated as a liquid, a solid, a pill, a capsule, a tablet, a solution, a gel, a syrup, a slurry or a suspension.

58. (Previously added) The method of claim 52, wherein the nucleic acid molecule is formulated with an agent that protects against degradation.

60. (Previously added) The method of claim 52, wherein the nucleic acid molecule is formulated as a time-release formulation.